The Smithville project (FY2015) is the only project to date where USACE is the primary funding partner. This project should be receiving funding shortly and is expected to be completed this winter. Summary below:

**Smithville Lake, MO Habitat Enhancement Partnership: submitted by the U.S. Army Corps of Engineers**

Smithville Lake is a 7,190-acre U.S. Army Corps of Engineers (USACE) reservoir located just north of Kansas City, Missouri. Smithville is known for its hundreds of irregular shaped coves that furnish 175 miles of shoreline. Smithville was completed in 1982 and currently attracts thousands of water enthusiasts, including thousands of anglers each year. The lake's primary purpose is flood control and, as a result, often experiences large water level fluctuations. Like many reservoirs across the country, fish habitat in the lake has significantly diminished since the reservoir was constructed. Repeated and long-term water level fluctuations have dramatically increased shoreline erosion, increased sedimentation rates and limited aquatic vegetation growth. Re-vegetation efforts in the past 10 years have been met with limited success. More than 4,000 acres of standing timber was left intact when the lake was built to provide fish habitat which has since degraded and provides only limited habitat for fish. The lack of stabilized shorelines and suitable fish habitat is limiting the lake's potential to serve as a productive and diverse fishery. In order to greatly increase the quality of the fishery and reduce the sedimentation rate, Smithville Lake needs additional hardwood and rocky fish habitat at various depths and significant shoreline protection. The project proposal includes armoring 2,000 feet of shoreline with 4,333 tons of rip-rap on the lakes most highly eroded points. The stabilization of the shoreline will decrease the sedimentation rate, increase water quality as well as provide the lake with additional shallow water habitat. The project also involves the installation of 12 large boulders in the reservoir coves. Rock sizes will vary to diversify habitat structure ranging from 24 inch up to 42 inch rip-rap boulders. The large boulders will provide excellent diverse habitat for fishing and recruitment purposes that will last indefinitely. In addition, woody cover will be enhanced in the lake by hinge-cutting approximately 300 selected trees near the waterline along the bridge abutments and installing approximately 75 large hardwood brush piles consisting of five trees per brush pile. The focus of the hinge-cutting and brush pile work will be conducted around the three main bridges and bridge abutments on the lake. Their locations provide excellent access to shoreline fisherman and boaters. The RFHP grant funding would also be used to repair/enhance an existing 190 feet fishing jetty/wave break. The existing jetty was constructed at only two feet above normal pool. The grant would provide funding to raise the height of the jetty to four feet above normal pool and extend the jetty another 60 to100 feet. The jetty top would be graveled for easy access to the public for fishing. The new and improved jetty would extend a minimum of 250 feet into the lake and serve as a fishing pier for shoreline fisherman and provide additional fish habitat in up to nine feet of water. The fishing jetty would also serve as a wave break to drastically reduce the sedimentation rate of sand being deposited into the lake from the Little Platte Park swim beach.

**Funds requested: $20,000; total cost: $135,620; total score: 203; rank: 2**

RFHP approved one project for FY2016 in which USACE was the primary funding partner. I would not anticipate funds for this project to be available until early fall 2016. Summary below:

## Richard B. Russell Shoreline and Deepwater Habitat Enhancement, GA/SC: submitted by USACE*

Richard B. Russell Lake is a USACE hydroelectric and pumped storage reservoir located on the Savannah River system in South Carolina (SC) and Georgia (GA), and suffers from bank erosion and limited littoral zone vegetative structure. Recent efforts to establish water willow on Lake Russell have been successful by employing a variety of planting techniques in a wide range of shoreline sites and substrate types. These techniques will be employed to establish additional colonies of water willow. Benefits will include increased abundance of nursery habitat and shoreline stabilization and nutrient filtering. In addition, deepwater structures will be placed to provide adjacent habitat for adult fish both pre and post spawning periods and foraging locations. Critical partnerships include Georgia Department of Natural Resources (GADNR) and South Carolina Department of Natural Resources (SCDNR).Representatives of the COE, GADNR and SCDNR will collectively select 10 locations that will be planted with 325 water willow plants each. The plants will be introduced in 1-4 feet of water and spaced approximately 18" apart and cover a shoreline area of 1,350 sq.ft. (6' wide x 225' long). Littoral zone plantings will stabilize substrates, reduce resulting siltation, erosion, and nutrient input, and provide structural habitat for shoreline-spawning fish species (i.e. largemouth bass, redear sunfish, bluegill, etc.). Plantings will also provide an immediate stable, protective nursery area for juvenile fish. Deepwater fish attractors will be placed adjacent to the established plant colonies in 8-15 feet of water. The deepwater structures will consist of 3 "Georgia Cubes" and 3 "Honey Hole trees.

**Funds requested: $10,025; total cost: $20,261; total score: 209; rank: 5**

RFHP was only able to fund 5 "on-the-ground" projects based on our FY2015 funding allocation from USFWS. We are hopeful to have that funding increased for FY2016. We should find out our final allocation sometime this spring. If we receive additional funds the following projects will be funded based on decreasing priority until all funds are depleted. Those projects are as follows:

## Trooper Island Shoreline Stabilization Project, Dale Hollow Lake, TN: submitted by USACE

Dale Hollow Lake, impounded in 1943, lies on the Tennessee-Kentucky state line on the Obey River, about three miles east of Celina, Tennessee. Dale Hollow covers 27,700 surface acres and 620 miles of shoreline. Although the primary purposes are flood control and power generation, it has become a recreational oasis for more than 3 million visitors each year. Surrounded by a thick expanse of forest, the clear blue lake creates a scenic backdrop for a variety of water and land recreational activities. Shoreline erosion has become a critical problem degrading fish habitat in historical prime angling areas. The work to be performed is planned at the Trooper Island site on Dale Hollow Lake. Rock riprap will be placed in areas that experience significant shoreline erosion. Work will stop siltation and turbidity from erosion, as well as limit excessive nutrients from soils and

minerals entering the water. These structures also provide excellent habitat for macroinvertebrates and shelter for young fish.
**Funds requested: $16,000; total cost: $48,042; total score: 200; rank: 6**

**Underwater Structure Enhancement for West Point Lake, GA: submitted by USACE***
The purpose of this project is to improve habitat structure/complexity, by planting American Water-willow as well as adding artificial habitat and fish attractors to various locations around West Point Lake (WPL). The plan for WPL, with the help of the Georgia Department of Natural Resources (GA DNR) and the Georgia BASS Nation (GBN), is to plant 25 site with American Water-willow. American Water-willow is a perennial non-invasive plant that is native to Georgia and grows in shallow water usually from the shoreline out to about five feet deep, thus enhancing littoral fish habitat. Several sites have already been planted and around 70% have taken root and are doing well. The GA DNR has established water willow on several other GA impoundments utilizing the proposed techniques. In addition, funding will be used to construct and install approximately 200 structures constructed of bamboo, five gallon buckets, and concrete with the help of volunteers from the Troup County High FFA Organization. **Funds requested: $6,000; total cost: $15,600; total score: 180; rank: 7**

**Delaware Lake Fish Habitat Structure Installation and Monitoring: submitted by USACE***
Delaware Lake is a USACE 1,300-acre flood control reservoir built in 1951 on the Olentangy River, north of Delaware, Ohio. During construction, all structure including all trees, buildings, roadways was removed, to allow for maximum flood storage capacity. Lack of structure is the primary habitat impairment on Delaware Lake leading to limited fish production. This project proposes construction and installation of fish structure in accordance with recommendations from the Ohio Division of Wildlife fish biologists. The design that will be used for building the cribs will be based off of the Pennsylvania Game Commission porcupine crib structure. This design has been used in various other reservoirs across Ohio and Pennsylvania and has proven successful in providing nursery habitat for juvenile fishes. RFHP funding will be used to purchase construction materials; all planning and placement costs will be covered with partner contributions.
**Funds requested: $10,000; total cost: $30,960; total score: 170; rank: 8**

**Rend Lake, IL Fishery Habitat Enhancement Project: submitted by USACE**
Rend Lake is located in Southern Illinois and impounds the Big Muddy River, 103.7 miles upriver from its confluence with the Mississippi River. The lake filled in 1972 and covers 19,000 acres. Primary purposes are flood control, area redevelopment, fish & wildlife conservation, recreation, and water supply. Rend Lake has become a driving factor in the area's economy, with visitors adding approximately $73 million annually to the regional economy. Historically there have been few submerged or emergent aquatic plants in Rend Lake. A combination of turbidity, wave action, and water level fluctuations has prevented aquatic and semi-aquatic plants from colonizing the lake. Some improvement has been seen recently in protected coves with reduced turbidity and establishment of dense stands of aquatic submerged and floating vegetation including lotus, milfoil, coontail, southern naiad, leafy pondweed, creeping water primrose, duckweed, and

American pondweed. Some fish habitat is provided by flooded timber, which is decreasing 30 plus years after impoundment. This project will augment the newly colonized aquatic plants by constructing and placing 150 porcupine balls and 500 spider blocks in grouped locations to create new habitat areas in presently barren areas, including shoreline fishing areas being developed for universal accessibility. Local high school students will assist in the project.
**Funds requested: $10,000; total cost: $24,828; total score: 168; rank: 9**

RFHP funded two additional projects in which USACE was a participating partner but was not the recipient of the RFHP funds (Smithville, MO and W. Kerr Scott, NC both in FY2012).

**Smithville Lake Habitat Enhancement Partnership, Missouri: submitted by the Missouri Department of Conservation**

Smithville Lake, impounded in 1982, is a 7,190-acre U.S. Army Corps of Engineer (USACE) flood control reservoir located just north of Kansas City, Missouri. Like most aging reservoirs, fisheries habitat has been degraded. Repeated and long-term water level fluctuations have limited aquatic vegetation, and re-vegetation efforts in the past ten years have met with limited success. The purpose of this project is to establish/enhance suitable aquatic habitat in Smithville Lake to increase angler-fish interactions, improve angler success and enhance recruitment of multiple fish species that will lead to improved lake health, increased wildlife-related recreation opportunities and strengthened local economies. The project proposal includes armoring 2,500 feet of shoreline with 4,965 tons of rip-rap on some of the lake's most highly eroded points. The stabilization of the shoreline will increase water quality as well as provide the lake with additional shallow water habitat. The project also involves the installation of 10 to 12 large rock piles in the reservoir basin consisting of approximately 70 tons of rock per rock pile for coverage of 1,587 $ft^3$ of rock per rock pile. In addition, hard, woody cover will be enhanced in the lake by hinge-cutting approximately 500 selected trees along the shoreline within selected locations and installing approximately 100 large hardwood brush piles consisting of 5-10 trees per brush pile. **Funds requested: $20,000; total score: 196.3; rank: 2**

**W. Kerr Scott Reservoir, North Carolina: submitted by Friends of W. Kerr Scott Lake, Inc.**

W. Kerr Scott Reservoir contains 2,284 acres above elevation 1030' msl. Approximately 70% of this area (1,587) is devoted to Public Park and recreational use. The remaining 697 acres make up a fringe area that extends along the 56-mile shoreline. The shoreline is highly developed. The W. Kerr Scott and surrounding camp grounds draw more than 1 million visitors annually and the Environmental Education Center serves 10,000 school children annually. The proposal consists of a riparian shoreline restoration project adjacent to the Visitors Assistance Center as a demonstration site/training site for landowners who want to combat erosion on the shoreline adjacent to their properties. It is anticipated that with the teaching of these environmentally-friendly and restorative projects, future shoreline erosion control permitted on the lake will only be this restoration approach and not the utilization of rip-rap. Funding will also be used to assist lake clean-up efforts. Contractors will be hired to grade the slope of

the bank to a 2:1 ratio. The sloped bank will be reinforced with erosion control materials such as semi-permanent erosion control blankets and coconut fiber logs for stream toe protection. The Visitors Assistance Center site will plant native warm season grasses, live stakes of black willow, silky willow and plant gallon sized bucket trees of alders, red maples and buttonbush. The littoral zone will be planted in water willow. The Smithey's Creek site will be planted with different vegetation due to the fishing pressure the immediate area experiences. Kentucky 31 fescue grass will be seeded in this location to allow fisherman the ability to access the area but not disturb the soil substrate.
**Funds requested: $20,000; total score: 168.4; rank: 8**